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Claims

1. An acidic solution for inhibiting microbial growth comprising an aqueous acidic core composition, said acidic solution comprising from about 50 to about 100 percent of said acidic core composition, said acidic core composition consisting of acids safe for use in food and drink products and food- and drink-associated products, said acid core composition prepared by the steps of:

admixing from about 1 to about 5 volume percent of a first acid, said first acid being an inorganic acid that dissociates nearly to completion in water, with about 5 to about 10 volume percent of a second acid, said second acid being an inorganic acid less strong than said first inorganic acid, said second acid having a dissociation constant of less than about 10^{-1} , to produce a first acidic composition; and

admixing from about 6 to about 10 weight percent of a hydroxy acid, having at least twice the chelating capability of said first and second acids, with water to produce a second acidic composition; and

admixing said first acidic composition with said second acidic composition to produce said acid core composition having a pH of less than one and wherein said acidic core composition will not react with human tissue.

2. The acidic solution of claim 1 wherein the first acid is hydrochloric acid.
3. The acidic solution of claim 1 wherein the second acid is phosphoric acid.
4. The acidic solution of claim 1 wherein the hydroxy acid is an organic acid.
5. The acidic solution of claim 1 wherein the hydroxy acid is a weak acid relative to said first and second acids, said hydroxy acid having a dissociation constant of from about 10^{-1} to 10^{-5} .
6. The acidic solution of claim 1 wherein the hydroxy acid serves as a conjugate base to said first inorganic acid.

7. The acidic solution of claim 1 wherein the first acid of said acidic core composition is safe for use in food and drink products and in food- and drink-associated products.
8. The acidic solution of claim 1 wherein the second acid of said acidic core composition is safe for use in food and drink products and in food- and drink-associated products.
9. The acidic solution of claim 1 wherein the hydroxy acid is a hydroxy carboxylic acid.
10. The acidic solution of claim 9 wherein the hydroxy carboxylic acid is selected from the group consisting of ascorbic, citric, lactic, malic and tartaric acids.
11. The acidic solution of claim 1 wherein the hydroxy acid is a tricarboxylic acid.
12. The acidic solution of claim 1 wherein the hydroxy acid consists of at least three carbon atoms.
13. The acidic solution of claim 1 wherein the hydroxy acid is an acid safe for use in food and drink products and in food- and drink-associated products.
14. The acidic solution of claim 1 wherein the hydroxy acid is citric acid.
15. The acidic solution of claim 1 wherein the solution is safe for use in ingestible products.
16. The acidic solution of claim 1 wherein the solution is safe for use on surfaces that contact ingestible products.
17. The acidic solution of claim 1 wherein the pH of said solution is less than one.
18. The acidic solution of claim 1 wherein the solution is nonreactive with human skin.
19. The acidic solution of claim 1 wherein the acidic core composition is substantially non-corrosive to metals.
20. The acidic solution of claim 1 wherein the solution is substantially non-corrosive to metals.
21. A pharmaceutical compound comprising a three acid composition, said three acid composition comprising:

a first acid, said first acid being an inorganic acid that dissociates nearly to completion in water;

a second acid, said second acid being an inorganic acid less strong than said first inorganic acid and having a dissociation constant of less than about 10^{-1} ; and

a third acid, said third acid being an organic acid weaker than said first and second acids, said third acid having a dissociation constant of from about 10^{-1} to 10^{-5} and having chelating capability of at least twice said first and second inorganic acids; and

a pharmaceutical agent.

22. The pharmaceutical compound of claim 21 wherein the first, second and third acids are GRAS acids.

23. The pharmaceutical compound of claim 21 wherein the pharmaceutical agent is selected from the group consisting of a gel, a cream, a surfactant, an emollient, a lotion, and a liquid.

24. The pharmaceutical compound of claim 21 wherein the compound is safe for human ingestion.

25. A composition for processing food comprising:

a first GRAS acid, said first GRAS acid being an inorganic acid that dissociates nearly to completion in water;

a second GRAS acid, said second GRAS acid being an inorganic acid less strong than said first GRAS acid and having a dissociation constant of less than about 10^{-1} ; and

a third GRAS acid, said third GRAS acid being an organic hydroxy acid weaker than said first and second GRAS acids, said third GRAS acid having a dissociation constant of from about 10^{-1} to 10^{-5} , and having chelating capability of at least twice said first and second GRAS acids.

26. The composition of claim 25 wherein the first GRAS acid is hydrochloric acid, the second GRAS acid is phosphoric acid and the third GRAS acid is citric acid.

27. A method of preserving food comprising the step of adding a three acid preservative composition to a food substance, said three acid preservative composition comprising:

a first GRAS acid, said first GRAS acid being an inorganic acid that dissociates nearly to completion in water;

a second GRAS acid, said second GRAS acid being an inorganic acid less strong than said first GRAS inorganic acid and having a dissociation constant of less than about 10^{-1} ; and

a third GRAS acid, said third GRAS acid being an organic acid weaker than said first and second GRAS acids, said third GRAS acid having a dissociation constant of from about 10^{-1} to 10^{-5} , and having chelating capability of at least twice said first and second GRAS acids.

28. The method of claim 27 wherein the first GRAS acid is hydrochloric acid, the second GRAS acid is phosphoric acid and the third GRAS acid is citric acid.

29. A method for decontaminating surfaces comprising the step of contacting said surface with a decontaminant comprising a three acid composition, said three acid composition comprising:

a first GRAS acid, said first GRAS acid being an inorganic acid that dissociates nearly to completion in water;

a second GRAS acid, said second GRAS acid being an inorganic acid less strong than said first GRAS inorganic acid and having a dissociation constant of less than about 10^{-1} ; and

a third GRAS acid, said third GRAS acid being an organic acid weaker than said first and second GRAS acids, said third GRAS acid having a dissociation constant of from about 10^{-1} to 10^{-5} , and having chelating capability of at least twice said first and second GRAS acids.

30. The method of claim 29 wherein the surface is decontaminated from one or more contaminants selected from the group consisting of a bacteria, a virus, a fungus, an aflatoxin, a biological toxin, an exotoxin, an endotoxin, a poison, a phytotoxin, an insect venom, an animal venom, a mycotoxin, an insecticide, a pesticide, a mustard agent, a nerve agent, a blister agent, a cholinesterase and a cholinesterase inhibitor.

31. The method of claim 29 wherein the surface is a surface which comes into contact with products used for human consumption.

32. The method of claim 29 wherein the surface is human tissue.

33. The method of claim 29 wherein the surface comes into contact with human tissue.

34. The method of claim 29 wherein the three acid composition is contained within a porous substance.

35. The method of claim 29 wherein the three acid composition is contained within a sponge.

36. The method of claim 29 wherein the three acid composition is contained within a towelette.

37. The method of claim 29 wherein the three acid composition further comprises an agent selected from the group consisting of a foam, a surfactant, an aerosol, a thickening agent, and a gel.

38. A method for inhibiting microbial growth on a surface comprising contacting said surface with a compound, said compound comprising a three acid composition, said three acid composition comprising

a first acid, said first acid being an inorganic acid that dissociates nearly to completion in water;

a second acid, said second acid being an inorganic acid less strong than said first inorganic acid and having a dissociation constant of less than about 10^{-1} ; and

a third acid, said third acid being an organic acid weaker than said first and second acids, said third acid having a dissociation constant of from about 10^{-1} to 10^{-5} , and having chelating capability of at least twice said first and second acids.

39. The method of claim 38 wherein the surface is human tissue.
40. The method of claim 38 wherein the surface is a human eye.
41. The method of claim 38 wherein the compound is contained within a sponge.
42. The method of claim 38 wherein the compound is contained within a towelette.
43. The method of claim 38 wherein the compound is safe for human ingestion.